

## ***HEREFORDSHIRE ARCHAEOLOGY***

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**A Community Archaeology Project at the Glyn Neath  
Gunpowder Works, Pontneddfechan, South Wales.**

**SAM-BR230**



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**Herefordshire Archaeology**  
Environment, Planning and Waste  
Economy, Communities & Corporate Directorate  
Herefordshire Council



A Community Archaeology Project at the Glyn Neath  
Gunpowder Works, Pontneddfechan, South Wales.

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**Herefordshire Archaeology** is Herefordshire Council's county archaeology service. It advises upon the conservation of archaeological and historic sites and landscapes and carries out conservation and investigative field projects.

## Contents

|                                                   |    |
|---------------------------------------------------|----|
| Summary: .....                                    | 5  |
| 1. Introduction .....                             | 6  |
| 2. Aims and Objectives.....                       | 7  |
| 3. Policy and guidance .....                      | 7  |
| 4. Site location .....                            | 8  |
| 5. Geology .....                                  | 8  |
| 6. Historical and archaeological background ..... | 8  |
| 7. Methodology.....                               | 9  |
| 8. Results .....                                  | 11 |
| 9. Discussion.....                                | 20 |
| 10. Conclusion.....                               | 22 |
| 11. Acknowledgements.....                         | 23 |
| 12. Bibliography .....                            | 23 |
| 13. List of Figures and Plates.....               | 24 |
| 14. Site Archive.....                             | 25 |
| 15. Appendix.....                                 | 26 |
| Appendix I     Context Registers. ....            | 26 |
| Appendix II    Photographic Register .....        | 30 |

## Summary:

As part of the Heritage Lottery Funded conservation works at the Glyn Neath Gunpowder Works, Pontneddfechan, a community archaeology project was set up by the Brecon Beacons National Park Authority in order to provide opportunities for local residents and other interested parties to engage with the project.

A week of investigations was agreed between all stakeholders and three areas were looked at archaeologically using a small team of professional archaeologists from Herefordshire Archaeology who supervised and educated a team of volunteers.

A trench was excavated across a bank next to the remains of the Cake Press House in order to establish its construction method and relationship to the Cake Press House. It was found to be an earthen blast wall rather than the possible remains of an earlier Cake Press house.

A trench was excavated across the leat, to the north of the Boiler House in order to record its construction and to investigate some exposed ironwork which had been suggested was the remains of a pedestrian bridge over the leat. The sides and base of the leat were found to have been constructed using unbonded stone. This was however set into local clays probably imported from the brickworks in order to provide an impermeable layer. The iron work appeared to be re-used iron sheets that may have been inserted at a later date in order to stop a leak.

An area of the Pump House floor was cleaned and recorded in order to expose wall and floor detail, prior to it being covered in order to prevent erosion. This work revealed details concerning the layout of the Pump House, fixing points for machinery, drainage and doorways and will assist in the understanding of how this building was arranged and used.

Disclaimer: It should not be assumed that land referred to in this document is accessible to the public. Location plans are indicative only. National Grid References are accurate to approximately 5m. Measured dimensions are accurate to within 1m at a scale of 1:500, 0.1m at 1:50 and 0.02m at 1:20m

Figures contained within this report contain material from the Ordnance Survey. The grid in this material is the National Grid taken from the Ordnance Survey map with the permission of the Controller of Her Majesty's Stationery Office (OS Licence 100024168). This material has been reproduced to locate the site in its environs.

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#### Crynodeb:

Fel rhan o waith cadwraeth a ariennir gan y Loteri Treftadaeth yn Noffa Gwn Nedd, Pontneddfechan, sefydlwyd prosiect archaeoleg gymunedol gan Awdurdod Parc Cenedlaethol Bannau Brycheiniog er mwyn darparu cyfleoedd i drigolion lleol a phartïon eraill â diddordeb ymgysylltu â'r prosiect.

Cytunwyd ar wythnos o ymchwiliadau rhwng yr holl randdeiliaid ac edrychwyd ar dri maes yn archeolegol gan ddefnyddio tîm bach o archeolegwyr proffesiynol o Archaeoleg Swydd Henffordd a oedd yn goruchwyllo ac yn addysgu tîm o wirfoddolwyr.

Cloddwyd ffos ar draws banc nesaf i olion y Tŷ Cacennau Cacen er mwyn sefydlu ei ddull adeiladu a'i berthynas â The Cake Press House. Canfuwyd bod yn wal chwyth pridd yn hytrach na gweddillion posibl tŷ cynharaf Cacen.

Cafodd ffos ei gloddio ar draws y cwt, i'r gogledd o'r Boiler House er mwyn cofnodi ei waith adeiladu ac i ymchwilio i waith haearn agored a awgrymwyd oedd olion pont cerddwyr dros y cwt. Canfuwyd bod ochrau a sylfaen y lliain wedi eu hadeiladu gan ddefnyddio cerrig heb ei bontio. Fodd bynnag, cafodd hyn ei osod mewn clai lleol sy'n debyg o fewnforio o'r gwaith brics er mwyn darparu haen anhydraidd. Ymddengys bod y gwaith haearn yn ailddefnyddio taflenni haearn a allai fod wedi eu mewnosod yn ddiweddarach er mwyn atal gollyngiad.

Glanhawyd a chofnodwyd ardal o lawr y Pwmp er mwyn datgelu manylion y wal a'r llawr, cyn iddo gael ei orchuddio er mwyn atal erydiad. Datgelodd y gwaith hwn fanylion ynglŷn â chynllun y Pump House, gan osod pwyntiau ar gyfer peiriannau, draeniad a drysau a bydd yn cynorthwyo i ddeall sut y trefnwyd a defnyddiwyd

Ymwadiad: Ni ddylid tybio bod y tir y cyfeirir ato yn y ddogfen hon ar gael i'r cyhoedd. Mae cynlluniau lleoliad yn arwyddol yn unig. Mae Cyfeiriadau Grid Cenedlaethol yn gywir i oddeutu 5m. Mae'r dimensiynau mesur yn gywir o fewn 1m ar raddfa o 1: 500, 0.1m ar 1:50 a 0.02m ar 1: 20m

Mae'r ffigurau a gynhwysir yn yr adroddiad hwn yn cynnwys deunydd o'r Arolwg Ordnans. Y grid yn y deunydd hwn yw'r Grid Cenedlaethol a gymerwyd o'r map Arolwg Ordnans gyda chaniatâd Rheolwr Llyfrfa Ei Mawrhydi (Trwydded yr AO 100024168). Atgynhyrchwyd y deunydd hwn i leoli'r safle yn ei ardal.

Manylion cyswllt: Archeoleg, Economi, Cymunedau a Chorfforaethol Sir Henffordd, Cyngor Swydd Henffordd, Archifdy a Chanolfan Cofnodion Swydd Henffordd, Fir Tree Lane, Rotherwas, Henffordd, HR2 6LA. 01432 383352

# A Community Archaeology Project at the Glyn Neath Gunpowder Works, Pontneddfechan, South Wales.

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## 1. Introduction

- 1.1 This report (HAR 382) provides an account of archaeological observation and recording within Glyn Neath Gunpowder Works (*List entry number SAM-BR230*) as part of the “Explosive Times Community Archaeology Project” developed by Ruth Coulthard, Brecon Beacons National Park Authority.
- 1.2 The Community Project described within this report forms part of a programme of works associated with the conservation, repair, research and interpretation of the Glyn Neath gunpowder works, Pontneddfechan, a Heritage Lottery funded project within the Brecon Beacons National Park



Figure 1: *Location of Glyn Neath Gunpowder works. © Herefordshire Council*

## 2. Aims and Objectives

- 2.1 The principle aim of the community archaeology programme was to create a range of skill building opportunities for staff, volunteers, the local communities and others involved in the project through archaeological excavation and recording within the area of the gunpowder works.

The objectives of the program of works were as follows:

- To conduct a programme of archaeological excavation and recording associated with the community research project.
  - To assess the vulnerability/sensitivity of any exposed remains.
  - To provide information on the archaeological potential of the site to enable the archaeological implications of the any future works to be assessed.
  - To produce a site archive for deposition with a Local Museum and to provide information for accession to the Local Historic Environment Record.
- 2.2 The specific aims of the fieldwork associated with the community archaeology project were to investigate three specific areas: A trench across a bank associated with the Cake Press House in order to establish its use and make up. A trench across the leat to the north of the Boiler House in order to establish its construction methods and to explain the presence of a cast iron structure located next to the leat. To clean and record an area of the Pump House Floor that was being subjected to erosion.

## 3. Policy and guidance

- 3.1 The community archaeology project was undertaken regarding relevant legislation, National Planning Policy, and Guidance, and Regional and Local Planning Policy relating to Cultural Heritage. This included the ClfA standards and guidance for archaeological field evaluation, Guidance for the Submission of Data to the Welsh Historic Environment Records (version 1 2018), National Archives standards: national standard and guidance for collecting and depositing archaeological archives in wales 2017.

### 3.2 *Legislation*

Ancient Monuments (Class Consents) Order 1994 (SI 1994 No 1381) statute protects scheduled Monuments and Listed Buildings.

Legislation regarding Scheduled Monuments is contained within The Ancient Monuments and Archaeological Areas Act 1979. Under this legislation, it is an offence to carry out any works resulting in the demolition or destruction of or any damage to a scheduled monument without prior written consent.

Monuments included in the schedule have statutory protection. This work is undertaken by Cadw: Welsh Historic Monuments, which is an Executive Agency within the Assembly.

The site lies within the Brecon Beacons National Park. The purpose of the Brecon Beacons National Park is to conserve and enhance the natural beauty, wildlife and cultural heritage of this special landscape, and promote opportunities for the understanding and enjoyment of its special qualities by the public.

The Brecon Beacons National Park Authority is a signatory of the “Joint Statement on the Historic Environment Action Plan”, which defines common principles for the sustainable management of the historic environment across the UK National Parks and ensures that sustainable management of the historic environment is fully integrated into all aspects of the management of National Park landscapes.

#### **4. Site location**

- 4.1 The remains of the Glyn-Neath Gunpowder Works are located to the north east of Glyn Neath at the small village of Pontneddfechan. The site is positioned within the deep wooded valley of the River Mellte. A series of isolated stone and brick-built structures stretch along the bank of the river for approximately 2 kilometres. (See Figure 2).

#### **5. Geology**

- 5.1 The following information has been provided by the BBNPA Geologist, Alan Bowring, to provide site specific geological detail for inclusion in the report:

The site is located within a thickly wooded river gorge eroded by river action over hundreds of thousands of years into a succession of sandstones and mudstones dating from the late Carboniferous period. The oldest seen to outcrop within the site is the Twrch Sandstone (formerly known as the Basal Grit). It is overlain by the Bishopston Mudstone (formerly known as the Middle Shale). Both of these have ‘Formation’ status and together they form the Marros Group (deposited between 326 and 313 million years ago and formerly known as the Millstone Grit Series). Individual sandstone beds within the Bishopston Mudstone are locally significant landscape-forming features and referred to as for example the Twelve Foot Sandstone and Cumbriense Sandstone. Overlying the Marros Group are the sandstones and mudstones which form the South Wales Lower Coal Measures Formation; only the lowermost unit of this succession is apparent within the gorge, this is a thick sandstone traditionally known as the Farewell Rock (around 313-312

million years old). Each of these sandstones is associated with deposition in a tropical coastal and/or deltaic environment.

This late Carboniferous succession of strata is underlain by an early Carboniferous limestone succession (359-326 million years ago). Though not exposed within the site, the Carboniferous Limestone does form the nearby Dinas Rock. This feature itself lies along the Neath Disturbance, a major NNE-SSW aligned zone of faulting and folding dating from the end-Carboniferous/early Permian Variscan Orogeny (mountain-building period) which reactivated a pre-existing structure. Disruption of the originally flat-lying sedimentary strata extends into the rocks described above which underlie the site.

The Mellte is one of several local rivers which have carved deep gorges through this rock succession during the Quaternary period in response to down-cutting of the Vale of Neath by glacial ice. In places, valley sides over-steepened through these processes have collapsed during the post-glacial period leaving characteristic scars. Limited river terraces and alluvial deposits of Holocene age are present within the narrow valley floor.

## **6. Historical and archaeological background**

### **6.1 *The Old Gunpowder Works***

The foundation and function of the Gunpowder works are well documented. The publication of the Pritchard, Evans and Johnson volume, "The Old Gunpowder Factory at Glynneath" describes in detail the development, day to day processes and inherent risks associated with running the factory. A brief summary of the history of the site is illustrated below.

Industrial activities in the region started with a 21-year lease of an area of land from the Marquess of Bute by the Quaker entrepreneur William Weston Young, for the sinking of silica mines around Craig-y-Dinas from 1822 onwards. The silica was extracted for the manufacture of firebricks at the Dinas Firebrick Co. in Pont Walby. In 1843, Young's lease ran out and the then Riddles, Young & Co. firebrick manufacturers moved to a new premise on The Green, Neath.

In 1857, the Vale of Neath Powder Company built a "gunpowder manufactory", having obtained "a licence to erect their mills over a space of two miles including the Upper and Lower Cilliepste Falls". The site on the River Mellte was chosen because of its remoteness and because of the availability of both water power and of timber to produce charcoal, one of the ingredients of gunpowder.

An inclined tramway was built from a siding on the Vale of Neath Railway near Pen-cae-drain. This was used to bring in sulphur and saltpetre, the other ingredients. A

horse-drawn tramway linked the various buildings on the site. In 1863, Curtis & Harvey took over the site. The acquisition of the Glyn Neath works would have given them a foothold in Wales and an unimpeded opportunity to develop a lucrative market for blasting powders for mining and quarrying as there were no competitors in Wales. Curtis & Harvey began the manufacture of explosives in Hounslow in 1820. They grew rapidly as a company and the powder works at Glyn Neath were acquired along with seven other factories between 1830 and 1880. They later merged with Nobel's Explosives Co and finally became incorporated into Imperial Chemical Industries Ltd in 1926. The works were closed in December 1931, after the Home Office took black powder off the 'permitted list of explosives'. Many of the buildings where residues could have survived were deliberately set fire to and many of the buildings were demolished for safety reasons in 1932. Although the works were no longer producing gunpowder, ICI retained ownership until c.1948. During some of this time, explosives and detonators were stored in the magazines. ICI sold off a number of the staff houses and the remaining land was sold to the Forestry Commission. The Forestry Commission subsequently sold the majority of the site to the Local Authority, (Powys County Council) and the remainder to a private landowner. The land previously owned by Powys County Council was ceded to the Brecon Beacons National Park Authority in April 1996 through the Local Government Reorganisation (Wales) (Property etc.) Order 1996. Some of the ruins within this area of the site were officially scheduled as a SAM on 19 February 1997. The site is now owned and managed by the National Park Authority

## **6.2 *Site significance and archaeological context***

There appears to be a dearth of primary records relating to any aspect of the Glyn Neath gunpowder works. Given that Curtis's & Harvey became part of Explosives Trades Ltd (1918), Nobel Industries (1920), ICI (1926), and finally AkzoNobel (2008), one might have expected to find business records in the latter's archives. Unfortunately, extensive searches undertaken by leading authorities on the explosives industries, (Dr E.M. Patterson and Wayne Cocroft), found this not to be the case. Therefore all published documentation has had to rely upon secondary sources and original map annotations.

The site has been the subject of a number of surveys and reviews during recent times. During 2015, Clwyd-Powys Archaeological Trust was commissioned to undertake a Cultural Heritage Impact Assessment at the works (CPAT Report 133, Belford, 2015), this was followed by the production of a detailed review and gazetteer of the works by Fred Hamond during 2016 (Industrial Heritage Review of Glyn Neath Gunpowder Works Pontneddfechan and Gazetteer of Glyn Neath

Gunpowder Works Pontneddfechan. The information from the Belford and Hamond documents were then used to produce a Condition Report, Conservation Plan and a Management and Maintenance Plan, undertaken by Alastair Coey Architects in 2016. In order to avoid confusion, the structures which are dealt with in this document are referred to by the titles and building numbers that appear in Hamond's publications and therefore have a prefix of Hamond's numbers and/or Nobel's.

No archaeological excavation has been undertaken on the site and its location within a steep ravine which is densely wooded on both sides, renders it problematic to survey and record.

The site is of high value in terms its historical significance, its association with local and regional infrastructure and its links to the local community. The group value of the structures, the location and accessibility of the site today, all add to the significance of the site and provide a vivid reminder of what was a secretive and (due to its very dangerous nature), un-accessible industry. Its role in the production and provision of explosives for the quarrying and mining industries would have had a considerable economic impact on the surrounding area for over a century. The designation of much of the site as a Scheduled Ancient Monument in 1997 emphasises the importance of this site in legal and legislative terms.

## **7. Methodology**

- 7.1 After discussions with Cadw and representatives from the BBNPA, it was agreed that as the community archaeology project comprised one element of the broader scheme of HLF funded conservation works at the site, Cadw were content to add the updated WSI and relevant correspondence as an amendment to the existing SMC. Herefordshire Archaeology undertook the site work between the 30<sup>th</sup> of July and the 4<sup>th</sup> of August 2018.

It should be noted that due to the severe topography and dense vegetation cover it was not possible to produce accurate (sub 3 metre) Grid References or Ordnance Datums. Grid references and Datum values have been used based on data from previous reports and publications.

### **7.2 Public engagement and volunteering**

Herefordshire Archaeology staff took part in an "Open Day" on 10<sup>th</sup> March 2018 at Pontneddfechan Hall. This included photographic and digital displays aimed at increasing public awareness of the variety of ways in which they could be involved in and engage with the project. A total of 17 members of the public specifically expressed an interest in being involved with the archaeological project and signed up

to be notified of the details of the community archaeology project. These details were sent to the BBNP Volunteer Development Officer who was responsible for volunteer liaison.

In order to make it as easy as possible for as many as is practicable to be involved a “booking system” for volunteers was implemented. This has been used on a number of earlier community projects to good effect. Volunteers were able to book in for either a 3 hour morning session or a 3 hour afternoon session or both each day. Two members of staff (Simon Mayes and David Williams), were committed to running the project for the full six days however, other staff members were made available as support for particular activities such as logistical support, backfilling etc. The numbers of volunteers who took part in the excavations varied from morning to afternoon and from day to day, ranging from 2 to 5 individuals on site at any one time. In addition, trench talks and short tours were given to passing walkers and other interested parties. The project was intended to comprise 6 days of fieldwork (excavation and recording), to include a day of finds processing and documentation. However, due to the lack of any artefactual material being recovered from any of the areas investigated, excavation and recording continued for an extra day prior to backfilling and reinstatement.

Upon arrival volunteers were inducted in order to comply with Health & Safety legislation. Site protocols were explained and volunteers were trained in the use of hand tools, the collection and basic recording of finds and the concept of excavation and recording by context.

#### **7.4 Excavation and investigation.**

Trench 1 was located over the Cake Press House (Hamond 203 / Nobel 30, NGR 291682 208273). This comprised a 1m wide trench up to 6m in length being excavated across the longitudinal axis of the building to the top of significant archaeology in order to locate and define wall lines and therefore enhance the plan of the structure(s). Prior to excavation works beginning any tall vegetation was to be removed from the trench area. A profile across the structure was produced as was a plan of the trench and its immediate environs.

It is understood that this structure represents the remains of a press house or cake press house which had been damaged by an explosion prior to 1927 and which may have been replaced by a building immediately to its north after this event. (Hamond 2016). Hamond describes the structure as: *“Remains of at least two rubble masonry buildings on west side of former tramway....only the south building is shown on the OS25-*

*inch maps, from 1877 onwards. Cited in 1927 Nobel Plan as "30 Press House damaged by explosion". When the explosion occurred is unknown. It is not impossible that the north building was its replacement."* (Hamond 2016, building 203)

Designation status: Within BBNP but not SAM

- 7.5 Trench 2 was located across the leat between the boiler house (Hammond 502.2 / Nobel 44) and a Magazine / Pellet House, (Hamond / Nobel 47 & 48), at the base of the slope from the chimney NGR 292065 208610. This is the Upper leat described by Hamond [502.3] and is present on the 1877 Ordnance Survey Map providing water to two turbines and a small water wheel, (Hamond 2016). The trench was 1.5 m wide and up to 6m in length and provided a section across the leat and included the investigation of an iron object protruding from the eastern bank of the lead which is thought to be the remains of a foot bridge.

Designation status: Within BBNP and SAM

Spoil from the two trenches was stored as close to the trenches as was practical and safe.

- 7.6 The third area of investigation comprised an area of the Pump House floor (Hammond 208.1 / Nobel 35A, NGR 291925 208402). This is being affected by erosion (human footfall) and some of the material which comprised the floor and wall lines is being displaced. The accessible areas of the floor were cleaned by light trowelling and brushing in order to define edges and reveal machinery bases drain lines, doorways, construction breaks etc. The cleaned area was then recorded both photographically and by Total Station survey instrument.

*Nobel describes this structure as: "Remains of a single storey / single bay rubble masonry building situated between the former tramway and the west bank of the river beside the lower weir. Shown on OS 25 inch map from 1903 onwards, but not on 1877 edition so therefore erected in the intervening period. Cited in 1927 Nobel Plan as 35A Turbine & Pump House 18hp. Annotated by Moses as Turbine (18hp) pumps for hyd. Press. The turbine house was built against the SW gable of an existing waterwheel pit....It was fed off the end of the elevated leat [502.3] and drove a pump which generated hydraulic power. The pressurised water was apparently piped across the river to a hydraulic accumulator which in turn powered a pellet press house to its south."* (Hamond 2016, building 208.1)

Designation status: Within BBNP and SAM

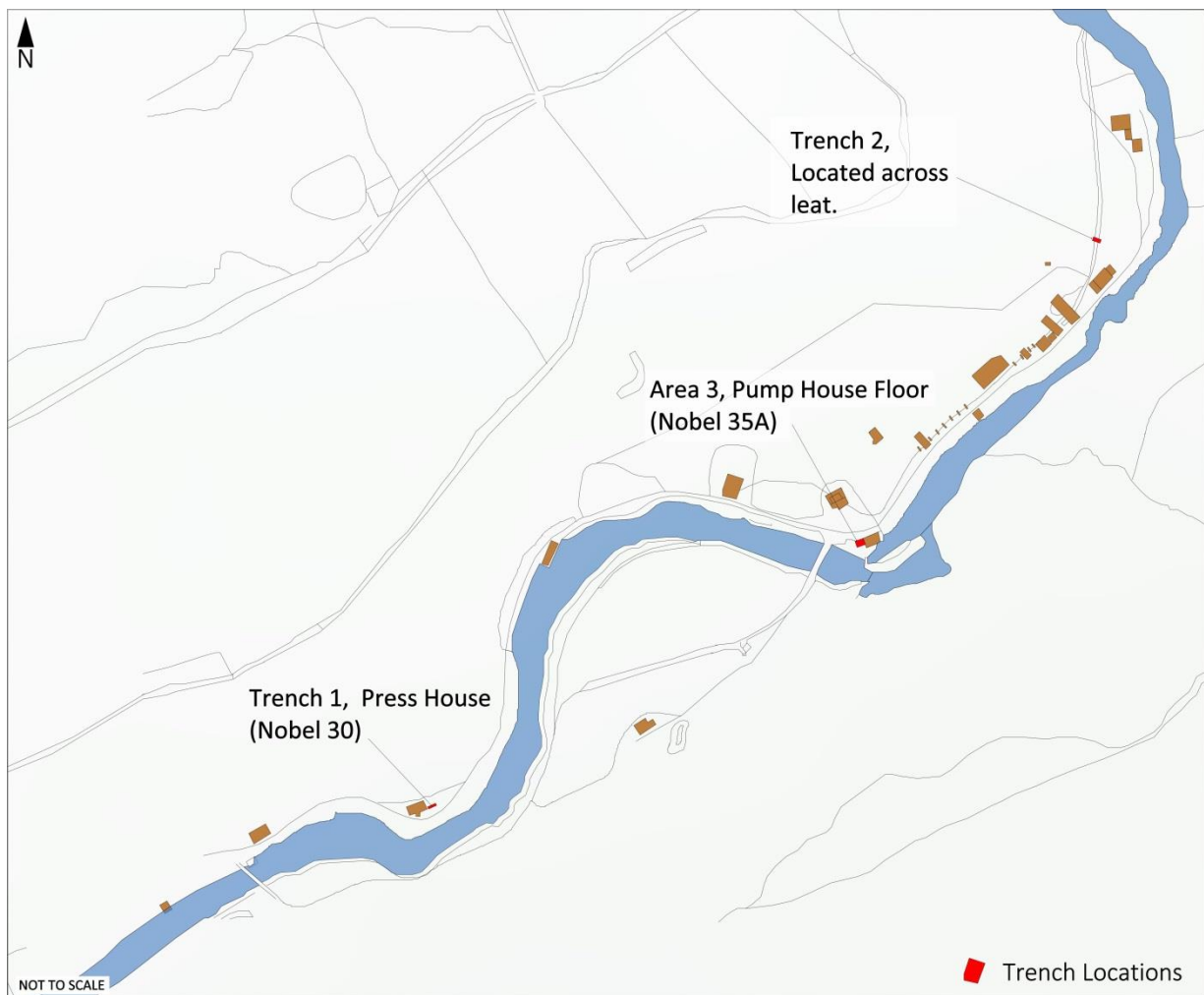


Figure 2 Trench locations.

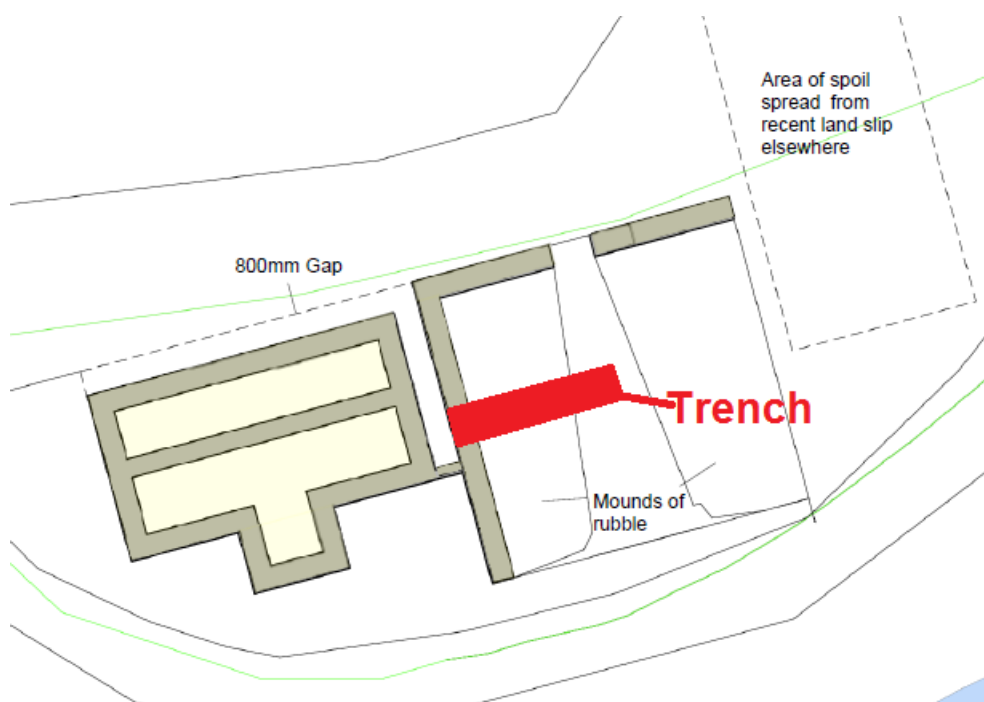
## 8. Results

### 8.1 Excavation

All excavation was undertaken by hand. Where appropriate contexts numbers were assigned and deposits recorded. All recording followed standard archaeological guidelines as set out by the Chartered Institute for Archaeologists (CIfA). All contexts were given unique numbers. All recording was undertaken on pro forma record cards that conform to accepted archaeological norms. Photographs of archaeological features, deposits and general area were taken using 16mp digital camera. A full description of the deposits identified within the excavated areas is provided in Appendix 1, page 26.

## 8.2 **Trench 1. Cake Press House**

Trench 1 was located over an earthen bank immediately to the south of the Cake Press House (Hamond 203 / Noble 30, NGR 291682 208273, 100m OD). The trench was positioned longitudinally to the axis of the building, across a raised bund in order to locate and define wall lines and construction details that relate to the construction and function of the bund in relation to the building. (See Figures 2 and 3). There appears to be some confusion concerning the development of the Cake Press House, a suggestion having been made that the earthen banks or bunds were in fact the remains of walls from an earlier Cake Press House which may have been damaged and a replacement structure constructed immediately to the west. It was hoped that the excavation of this trench would provide clarification concerning this.



Location of Trench in relation to the Cake Press House.

Trench 1 measured approximately 1.00m wide by 5.75m long, aligned southwest-northeast and was excavated to a maximum depth of 0.55m and minimum depth of approximately 0.30m. The stratigraphic sequence consisted of (101), a turf and topsoil deposit comprising a buff grey silty clay loam, with an average depth of 0.10m on the top of the bund increasing to approximately 0.20m at the base level of the bund. This directly overlay (102), a hard-packed yellow brown sandy clay deposit with inclusions of small rounded pebbles and medium to large angular stones within its lower levels.



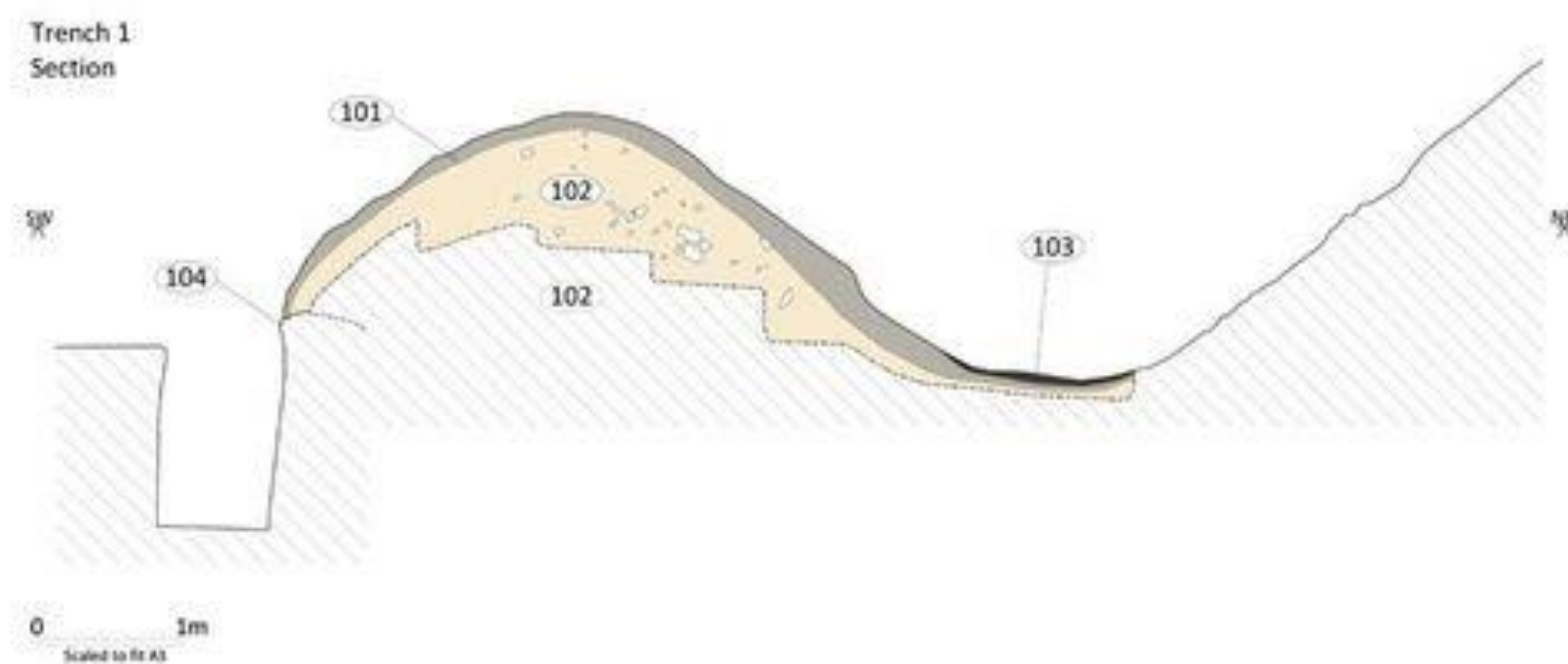
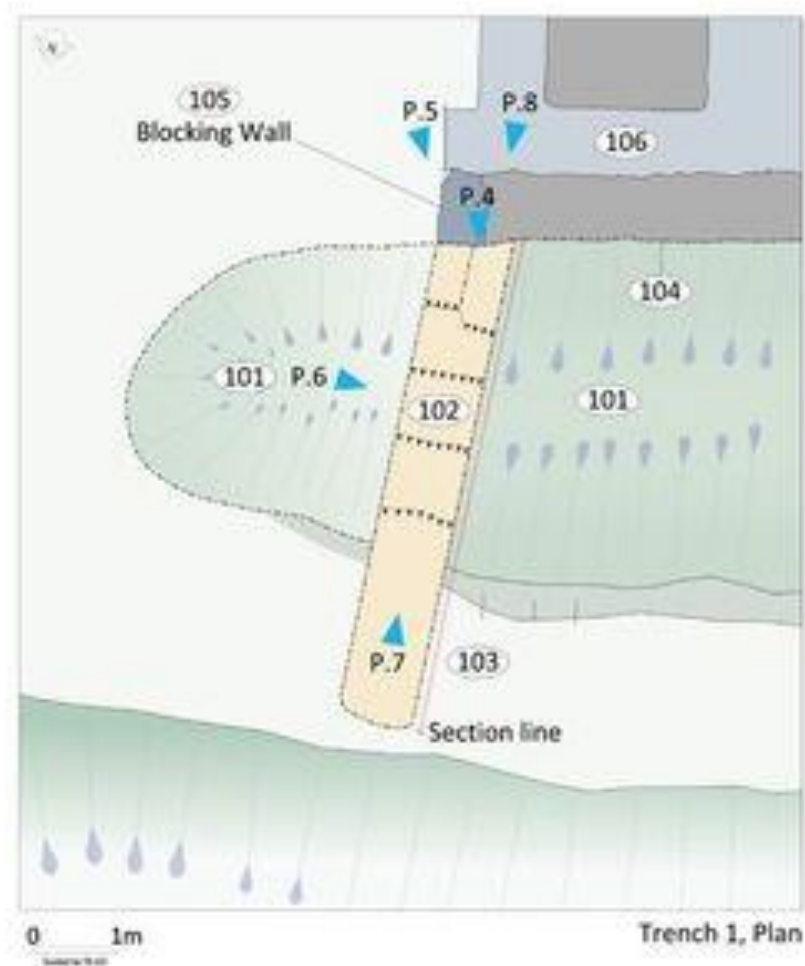
*Plate 1: Trench 1 during excavation.*

The trench was excavated in a series of stepped sondages to maintain the integrity of the bund following the excavation. No indication of a secondary wall on the northeast side of the bund or any indication of internal structures was identified. No finds were observed. (See Figure 3 & Plates. 4 - 7). The western face of the bund was revetted by a drystone wall approximately 1.3m in height (104). This provided an almost vertical face and ensured a gap between the bund and the eastern wall of the Cake Press House.



*Plate 2: Showing the trench in relation to the eastern wall of the surviving Cake Press House.*

It would appear that the earthen bank was constructed as a blast wall rather than a wall line. It's revetted face on the northern side presumably there to keep damp out of the stone built Cake Press House. This suggests that if there was damage to the original Cake Press House, it was rebuilt on its existing wall footings rather than immediately to the north/west and that the earthen bank investigated was constructed as a protective bund presumably to deflect blast. No artefacts were recovered from this excavation making the dating of its construction difficult.



- Plate. 4 Facing North , detail showing Bund wall (104)
- Plate. 5 Facing North , detail showing (103)
- Plate. 6 Facing East , detail showing West facing section (101), (102)
- Plate. 7 Facing South , Overview showing Trench 1.
- Plate. 8 Volunteers conducting archaeological excavation.

Figure 3, Trench 1

### 8.3 ***Trench 2. Leat***

Trench 2 was located to intersect the leat, north of the Boiler House (Hamond 502.2/Nobel 44) and south of the Magazine/Pellet House (Hammond/Nobel 47 & 48), at the base of the slope below the chimney NGR 292065 028610, (100m OD). The trench was positioned to provide a section across the leat and investigate an iron object protruding from the eastern bank of the leat. (See Figures 2 and 4).

The stratigraphic sequence consisted of (200) and (201), forming the existing ground surface either side of the leat. Both deposits comprised a red brown, loose, sandy deposit, with occasional inclusions of small rounded pebbles and infrequent inclusions of small angular stones. Surface layer (200) overlay a similar deposit, (209) that consisted of a loose red brown sandy deposit, with frequent inclusion of small angular stones, increasing in size and density with depth (See Plate. 10).

A small sondage was excavated into (209) that identified that (209) appeared to overlay a green clay deposit containing large angular stones. (208) appeared to form a waterproofing or lining / bedding layer for the construction of the leat walls (204). The northern side of the leat excavation was stopped at this level to maintain the structural integrity of the leat.

Located on the south side of the leat a larger area was excavated in order to investigate the protruding iron plate, the trench measured 1.00m by 2.05m, the stratigraphic sequence was similar to that observed on the north side of the leat apart from the iron plates (207).

(201) consisted of the existing ground surface as (200), a loose sandy red brown deposit overlaying (206) and (205). Unlike the north side of the leat the waterproofing clay layer (206) is separated from (205) through a series of large iron plates (207).

(207) comprised of a series iron plates laid vertically and running parallel to the line of the leat. The iron plates contained evidence for various corroded fittings or bolts (See Plates. 9, 10 & 11), suggesting that they had been reused. The plates were on average 0.035m to 0.04m thick with an average width of 0.35m.

Due to the need to maintain the integrity of the leat structure the length or depth of the iron plates was not fully investigated. A series of sondages were excavated into (206) and (205) to investigate the construction details. It would appear that the iron plates were inserted against (206) post leat construction and do not directly relate to any bridge or superstructure associated with the leat.

(206) consisted of a mixed green clay deposited packed with large angular stones, laid flat, the deposit was similar to (208) suggesting a contemporary relationship. A

second sondage was excavated into (205). This deposit consisted of loosed packed large angular stones, the deposit contained voids between the stones and the general appearance of the formation the deposits suggested that the stones were more dumped than deliberately laid in place. (See Plate. 11)

Within the line of the leat, the leat base and the walls of the leat were exposed and cleaned of roots and vegetation, revealing that the leat walls and base were constructed from unbonded stone. The upright walls were angled back from the concave base giving the leat a shallow “U” shaped profile.

No finds of significance were observed within the excavated material.



*Plate. 3 Overview of excavation of Trench 2, showing iron plating.*

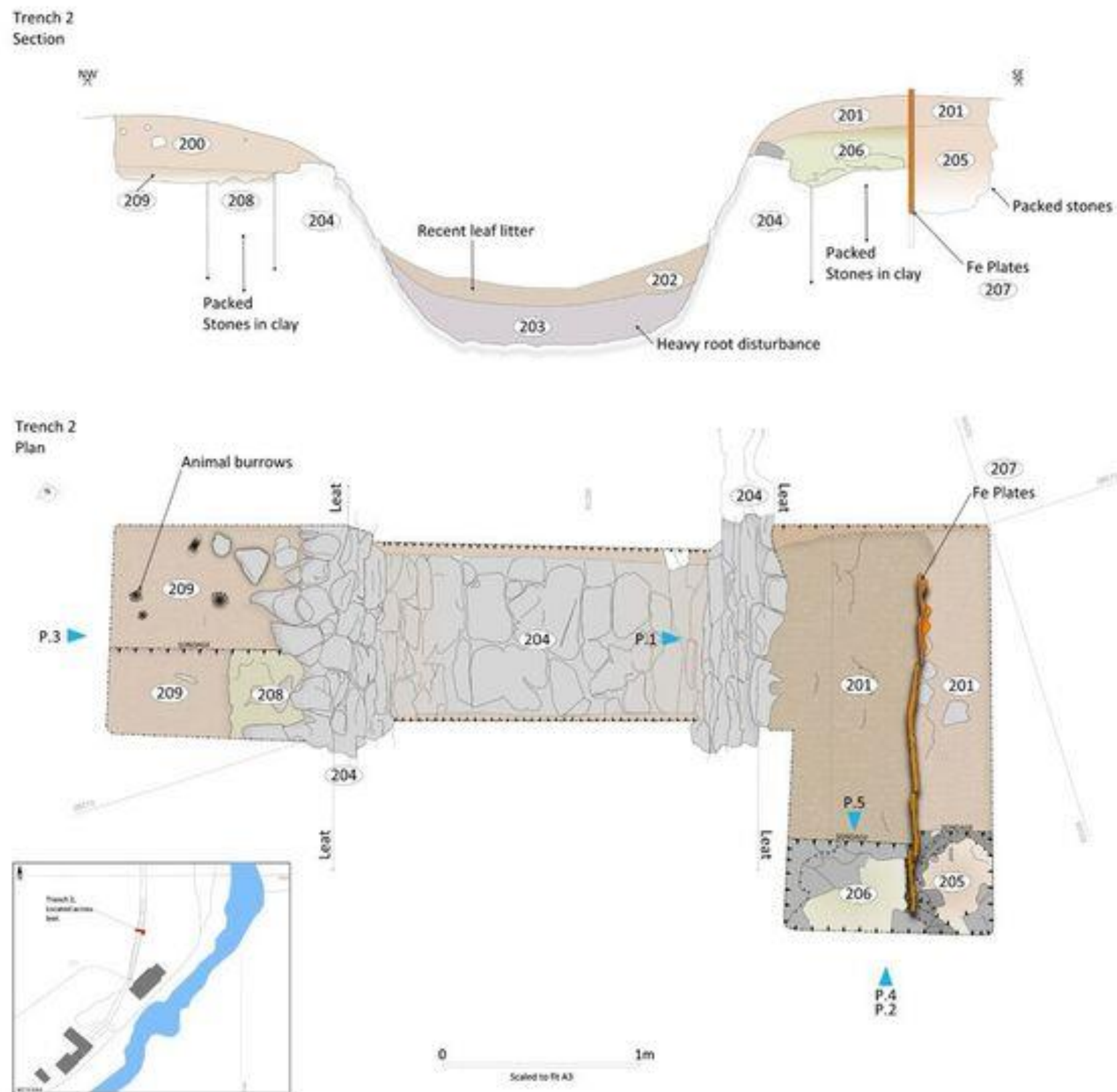


Plate. 9 Top Down view showing leat excavation.

Plate. 10 Detail showing clay layer (206) bonding leat wall.

Plate. 11 Detail showing sondage and iron plates (207)

Figure 4, Trench 2

#### 8.4 **Area 3. Pump House Floor**

The Area 3 investigation consisted of an area of the Pump House floor (Hamond 208.1/Nobel 35A, NGR 291925 208402, 100m OD.) being cleaned of loose debris in order to expose the surface features below the modern build-up. The area is subject to heavy footfall causing erosion of the surface material. The rationale behind this work was to produce a “point in time” record of the area prior to much of it being covered by protective hogging.



Location of area cleaned and recorded.

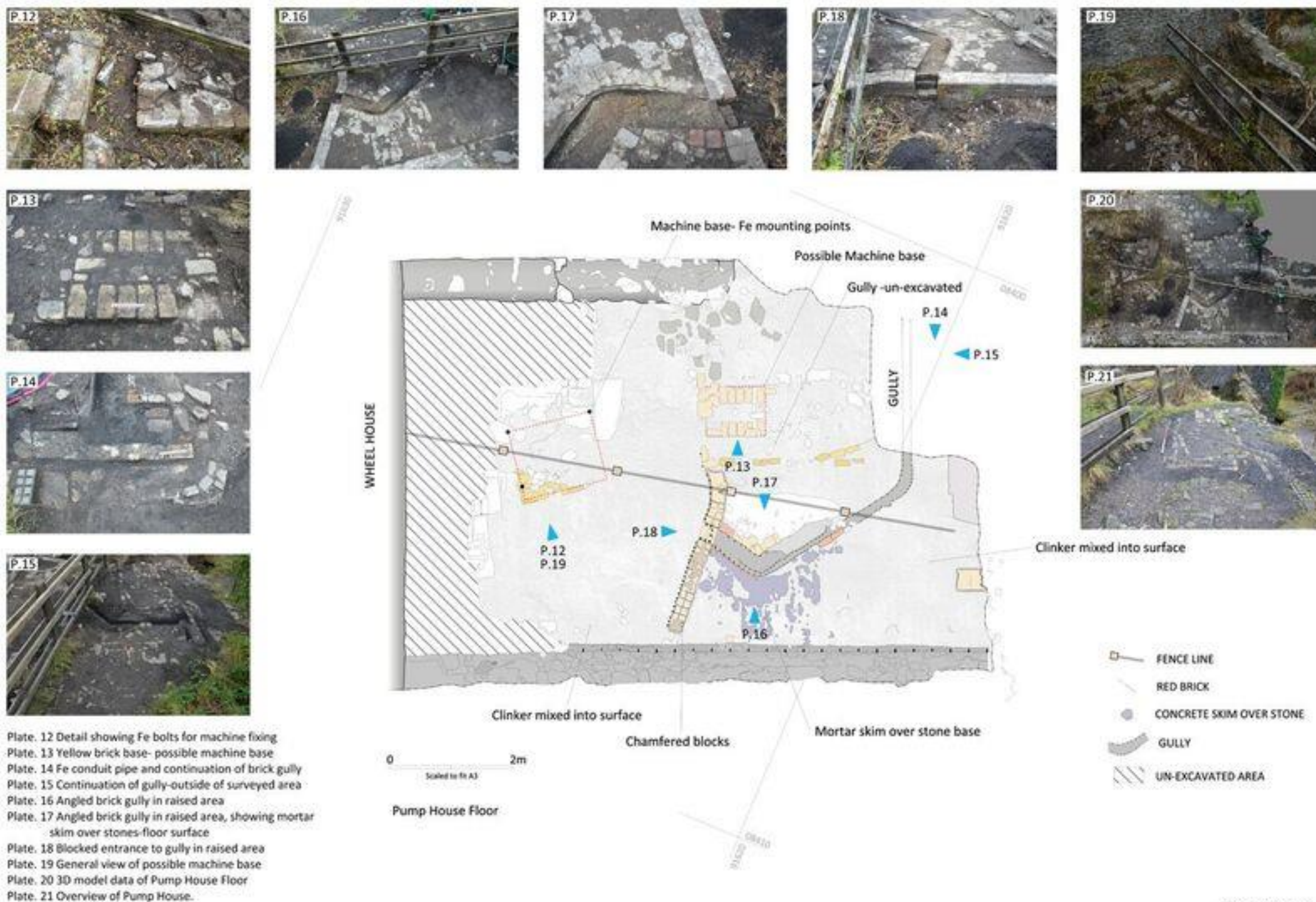
The area measured approximately 9.30m by 6.30m and was cleaned by light trowelling and brushing, the surface exposed was then photographed in detail to produce a 3D model of the site which was then transferred into AutoCAD to produce a line drawing, (See Figures 2 and 5). As no investigation of any of the remains was required, surfaces and features were recorded but no feature numbers or contexts were assigned. Within the area examined several features were identified suggesting the location of machine bases or fixing points (See Figure 5) and a series of angled gully's constructed in a mixture of red and yellow brick were recorded. No finds were recovered from the cleaning.

The excavation within the pump house has allowed the build-up of relatively modern material to be removed exposing part of the internal layout of the pump hose floor surface, but given the limitations of both the timescale and the community

participation it would require further work to enhance the understanding of the internal layout of the pump house.



*Plate. 4 Overview of Area 3 cleaning and recording.*



## **9. Discussion**

### **9.1 Trench 1 – Cake House Press**

The excavation of Trench 1 was positioned to investigate one of the raised bunds associated with the Cake Press House (Hamond 203 / Noble 30, NGR 291682 208273), it had been speculated that the bunds may have been formed from redeposited material taken from clearances elsewhere on the site and were consequently concealing an unknown building or structure associated with the Cake Press House. Or that the Cake Press House had been damaged and that the banks or bunds represented the robbed out remains of the original Cake Press House.

The archaeological investigation identified that the bund was formed from one deposit, a hard-packed yellow brown, sandy clay with frequent inclusions of angular stone at the lower levels. The excavation was extended to ascertain whether the bund was constructed over two parallel wall lines, however only the exposed wall line seen on the west side and running parallel to the Cake House Press wall was observed. Examination of the Cake Press House wall illustrated that the wall line was only faced on the exposed side, the internal construction of the un-bonded wall tapered down into the bund material. No indication of any further structural remains was identified during the excavation and no finds were observed.

It is therefore suggested that the two bunds or banks were constructed a blast deflection bunds rather than anything to do with previous Cake Press House floor plans. It is also clear that these banks were not constructed using re-used material and could therefore be contemporary with the initial construction of the Cake Press House or equally could have been added at any time after the construction of the Cake Press House.

### **9.2 Trench 2 - Leat**

The excavation of trench 2 was instigated due to the previous identification of a line of protruding iron plate on the south bank of the Leat, it was speculated that the iron object may have represented the fixing for a foot bridge crossing the leat to service the chimney or quarry areas.

Examination of the stratigraphic sequence within the excavated area indicated that the ground surface deposit was the same for both sides of the leat, consisting of a red brown, loose, sandy deposit, with occasional inclusions of small rounded pebbles and infrequent inclusions of small angular stones forming the raised banks of the leat. A difference in height to the banks of the leat and subsequently build-up of the ground surface deposit may reflect local erosion patterns

Within the line of the leat, the leat base and the leat walls that were exposed and cleaned of roots and vegetation revealed that the leat walls and base were constructed of unbonded stone. The upright walls were angled back from the concave base giving the leat a shallow “U” shaped profile.

The use of unbonded stone in the leat construction would have resulted in significant water loss along the course of the stone constructed leat, however the excavation of a sondage to the south of the leat identified that the leat walls were in fact laid into a mixture of green clay and stone, this deposit would have acted as a waterproofing layer to the leat structure, not unlike a puddle clay lining to a mill pond.

The clay deposit was observed on both sides of the leat and it would be fair to speculate the base of the leat is also formed from the same clay deposit. The use of a clay lining to in the construction of the leat walls and base would have eliminated the chance of leaks being cause if the waterproofing of the leat relied solely on a mortar bonded walls, which would be subject to frost cracking, water penetration and settlement.

The excavation identified that the Iron plates formed a line of shoring used in the construction of the leat to separate the leat structure from the built-up bund. The southern bund being partially formed from dumped angular stone.

A metal detector survey was conducted with permission and SMC consent of Cadw but failed to identify any other areas along the course of the leat that contained areas of iron shoring. This implies that this is a localised area of shoring inserted specifically to solve a localised problem. The use of shoring may have been necessary due to changes in ground condition encountered during the construction of the leat or the leat wall may have failed at this point, the iron shoring being used to provide extra support, while no indication of matching plates on the north bank was identified to suggest that the plates formed bridge footings.

#### **9.4 Area 3 – Pump House Floor**

The Pump Hose floor investigation consisted of a section of the Pump House floor being cleaned of loose debris to expose the surface, as the area is subject to heavy footfall it is clear from the area investigated that significant damage is being done to the structures exposed during the clearance, the brick work is generally loose and weathered and the open area surfaces are cracking and breaking away.

Within the area examined several features were identified suggesting the location of machine bases or fixing points (See Figure 5) and a series of angled gullies constructed in a mixture of red and yellow brick were recorded. It is interesting to

note that the alignment of the structures within pump house does not directly line up to the surrounding walls, this may possibly indicate that the internal features are later additions to the building and that the size and or shape of the machinery meant that it had to be aligned differently than the machinery for which the structure was originally constructed for.

The clearance work with in the Pump House has allowed the build-up of secondary material to be removed exposing some of the internal layout of the building that has allowed us to set a bench mark in relation to the extent of the erosion caused by heavy footfall crossing the site. The detailed level of recording undertaken during this project should aid the identification and size of machinery, orientation and alignment of machinery and therefore how this complex building was laid out.

## **10. Conclusion**

- 10.1 This project, although limited in both time and scope, has proved to be of considerable interest and value to our future understanding of the layout and development of the site. From a community perspective, in excess of 120 hours of volunteer time was spent on the project together with a large number of passers by being given “in promptu” talks and tours.
- 10.2 The project has successfully answered a series of questions relating to the use of features, the method of construction of features and the detailed layout of the Pump House, prior to it being covered over in order to protect it.
- 10.3 It is now understood that the Cake Press House, even if it was damaged and rebuilt, was constructed in its original location and that the earthwork banks / bunds were constructed to contain and or deflect blast should an explosion occur. The construction of the leat is now well understood and the unusual ironwork associated with it satisfactorily explained. The Pump House floor cleaning and detailed recording will be of use during future research, even though the physical remains will be buried and protected from further erosion.

## 11. Acknowledgements

Herefordshire Archaeology would like to acknowledge the assistance and co-operation of Ruth Coulthard, Project Manager, (Breacon Beacons National Park), Alice Thorne, Heritage Officer, (Breacon Beacons National Park), Will Davies, (CADW), Reuben Wells, (UK Restoration) and Alastair Coey, (Alastair Coey Associates).

Especial thanks must go to the volunteers and members of the public who provided their time and hard work in order to make this project so successful. Particular thanks to Dilys Harlow, and the Joy family for all their hard work.

## 12. Bibliography

### Data sources:

The following sources of information were referred to:

- MAGIC (Multi-Agency Geographical Information for the Countryside, ([www.magic.defra.gov.uk](http://www.magic.defra.gov.uk)), Heritage Gateway ([www.heritagegateway.org.uk](http://www.heritagegateway.org.uk)),
- British Geological Survey (Website) <http://bgs.ac.uk>.

### Published Sources:

CIfA, 2007, Archaeological Archives Forum Archaeological Archives: a guide to best practice in creation, compilation, transfer and curation.

[https://www.archaeologists.net/sites/default/files/CIfAS&GArchives\\_1.pdf](https://www.archaeologists.net/sites/default/files/CIfAS&GArchives_1.pdf)

CIfA, 2014, Standard and guidance for archaeological field evaluation.

[https://www.archaeologists.net/sites/default/files/CIfAS&GFieldevaluation\\_1.pdf](https://www.archaeologists.net/sites/default/files/CIfAS&GFieldevaluation_1.pdf)

GGAT 2018, Guidance for the Submission of Data to the Welsh Historic Environment Records

(HERs) <http://www.ggat.org.uk/her/downloads/Guidance%20for%20the%20Submission%20of%20Data%20to%20Welsh%20HERs.pdf>,

The Federation of Museums and Art Galleries of Wales

<http://www.welshmuseumsfederation.org/en/news-archive/resources-landing/Collections/national-standard-and-guidance-for-collecting-and-depositing-archaeological-archives-in-wales-2017.html>

Communities and Local Government, 2012, National Planning Policy Framework.

English Heritage, Scheduled Monuments: A Guide for Owners and Occupiers, London, 1999

English Heritage, A Charter for English Heritage Planning and Development Advisory Services, London, 2009

English Heritage, Conservation Principles, Policies and Guidance, London, 2008

English Heritage, 2011, Environmental Archaeology: a guide to the theory and practice of methods, from sampling and recovery to post-excavation.

Hammond, 2016. Industrial Heritage Review of Glyn Neath Gunpowder Works Pontneddfechan.

Hammond, 2016. Gazetteer of Glyn Neath Gunpowder Works Pontneddfechan.

Clwyd-Powys Archaeological Trust 2015. Glyn Neath Gunpowder Works: Cultural Heritage Impact Assessment.

Alistair Coey Architects, 2016. Glyn Neath Gunpowder Works: Conservation Plan for the Brecon Beacons National Park authority.

Alistair Coey Architects, 2016. Glyn Neath Gunpowder Works: Management and Maintenance Plan.

Alistair Coey Architects. 2016 Glyn Neath Gunpowder Works: Condition Report.

Dyfed Archaeological Trust, 2016. Explosive times, the old gunpowder works community archaeology project: Community Consultation.

Herefordshire Archaeology, 2017. Programme of Archaeological Observation and Recording at the Old Gunpowder Works, Glyn Neath, Pontneddfechan, South Wales. Herefordshire Archaeology Report No. 369.

Prichard, T. Evans, J. and Johnson, S. 1985. The Old Gunpowder Factory at Glynneath. Merthyr Tydfil & District Naturalist's Society 1998.

### **13. List of Figures and Plates**

- Figure. 1**      Location of Glyn Neath Gunpowder works. © Herefordshire Council
- Figure. 2**      Trench locations.
- Figure. 3**      Trench 1 -Press House
- Figure. 4**      Trench 2 - Leat

**Figure. 5**      Area 3 – Pump Hose Floor

- Plate. 1**      Overview of excavation of Trench 1.
- Plate. 2**      Overview of excavation of Trench 2.
- Plate. 3**      Overview of Area 3 excavation.
- Plate. 4**      Facing North, detail showing Bund wall (104)
- Plate. 5**      Facing North, detail showing (103)
- Plate. 6**      Facing East, detail showing West facing section (101), (102)
- Plate. 7**      Facing South, Overview showing Trench 1.
- Plate. 8**      Volunteers conducting archaeological excavation.
- Plate. 9**      Top Down view showing leat excavation.
- Plate. 10**      Detail showing clay layer (206) bonding leat wall.
- Plate. 11**      Detail showing sondage and iron plates (207)
- Plate. 12**      Detail showing Fe bolts for machine fixing
- Plate. 13**      Yellow brick base- possible machine base
- Plate. 14**      Fe conduit pipe and continuation of brick gully
- Plate. 15**      Continuation of gully-outside of surveyed area
- Plate. 16**      Angled brick gully in raised area
- Plate. 17**      Angled brick gully in raised area, showing mortar skim  
over stones-floor surface
- Plate. 18**      Blocked entrance to gully in raised area
- Plate. 19**      General view of possible machine base
- Plate. 20**      3D model data of Pump House Floor

## **14. Site Archive:**

- 12 Context Cards
- 3 site drawings
- 83 digital photographs
- This document

The full site Archive arising from this work will be deposited with the NMR, a copy of this document will be lodged with the HER and a second copy with the Brecon Beacon's National Park Authority. No artefacts of any significance were recovered during this project.

A summary of the works described within this report will be written for Archaeology in Wales.

## 15. Appendix

### Appendix I Context Registers.

| Trench                                                                                                            |                                                                                                                                                                                                                     | 1                                                   |  |        |                               |  |
|-------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------|------------------------------------------------------------------------------------|--------|-------------------------------|--|
| Sample Section Length                                                                                             |                                                                                                                                                                                                                     | -                                                   | Excavated Depth                                                                    |        | 0.55m avg                     |  |
| Dimensions                                                                                                        |                                                                                                                                                                                                                     | 1.00m by 5.57m max depth 0.50m, minimum depth 0.30m |                                                                                    |        |                               |  |
| Context No                                                                                                        | Description (Layer, Cut, Fill)                                                                                                                                                                                      | Dimensions (as appropriate)                         |                                                                                    |        |                               |  |
|                                                                                                                   |                                                                                                                                                                                                                     | Diameter                                            | Length                                                                             | Width  | Depth                         |  |
| (101)                                                                                                             | Turf and Topsoil, buff grey (2.5YR6/1), silty clay loam, mouldable, sharp interface. Inclusions of very small angular pea grit 1%, occasional small rounded pebbles 1%.                                             | -                                                   | <5.75m                                                                             | <1.00m | 0.10m avg                     |  |
| (102)                                                                                                             | Bund Material, yellow brown (10YR8/8), sharp interface. Occasional inclusions of small rounded pebbles 1%, inclusions of angular small to medium pebbles 10%. Larger irregular stones at lower level. Dump material | -                                                   | -                                                                                  | -      | 0.40m+<br>Not fully excavated |  |
| (103)                                                                                                             | Deposit of black degrading organic material overlaying (101) within the valley between the two bunds.                                                                                                               | -                                                   | 1.00m                                                                              | <1.00m | 0.03m avg                     |  |
| (104)                                                                                                             | East west aligned – unbonded stone wall forming south wall of Bund (101), sealed by (102)                                                                                                                           | -                                                   | -                                                                                  | -      | -                             |  |
| (105)                                                                                                             | North south aligned, unbonded blocking wall between/ butting walls (104) and (106)                                                                                                                                  | -                                                   | -                                                                                  | -      | -                             |  |
| (106)                                                                                                             | Press House wall.                                                                                                                                                                                                   | -                                                   | -                                                                                  | -      | -                             |  |
| Interpretation                                                                                                    |                                                                                                                                                                                                                     |                                                     |                                                                                    |        |                               |  |
| Bund or banked area, unbonded stone wall aligned with press house wall line, no internal structure or North wall. |                                                                                                                                                                                                                     |                                                     |                                                                                    |        |                               |  |

| Trench                | 2                                                                                                                                                                                                               |  |                      |                                               |                                                            |
|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|----------------------|-----------------------------------------------|------------------------------------------------------------|
| Sample Section Length | -                                                                                                                                                                                                               | Excavated Depth                                                                    | 0.60m max in sondage |                                               |                                                            |
| Dimension             | 2.87m by 1.47m max depth 1.20m.                                                                                                                                                                                 |                                                                                    |                      |                                               |                                                            |
| Context No            | Description (Layer, Cut, Fill)                                                                                                                                                                                  | Dimensions (as appropriate)                                                        |                      |                                               |                                                            |
|                       |                                                                                                                                                                                                                 | Diameter                                                                           | Length               | Width                                         | Depth                                                      |
| (N200), (S201)        | Existing ground surface- same both sides of the leat, red brown sandy deposit loose, sharp interface. Occasional inclusions of small rounded pebbles 1%, occasional angular stones, small 5%. Root disturbance. | -                                                                                  | -                    | <1.00m + 2.05m                                | 0.22m avg                                                  |
| (202)                 | Deposit of recent degrading organic material overlaying (203) within the leat (leaf litter)                                                                                                                     | -                                                                                  | Approx. 1.60m        | <1.00m +                                      | 0.15m max                                                  |
| (203)                 | Fully degraded leaf litter- mixed with sandy deposit, red brown- heavy root disturbance.                                                                                                                        | -                                                                                  | Approx. 1.60m        | <1.00m +                                      | 0.30m avg                                                  |
| (204)                 | Unbonded stone walls forming leat sides and base. Large stones, sloping sides and concave base, base formed of large flat stones, appears to be unbonded.                                                       | -                                                                                  | -                    | -                                             | 1.20m +<br>Excavation stopped at this level.               |
| (S205)                | Deposit of large angular stones- unbonded, capped by (201) and butting Fe plates (207). Material use to form south side leat bank. Small sondage excavated, stones very tightly packed.                         | -                                                                                  | 0.40+                | 0.50m +<br>only visible in south side section | 0.60m +<br>partially excavated, base level not identified. |

|        |                                                                                                                                                                                                                                                                                                                                                                                |   |        |        |                                                   |
|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|--------|--------|---------------------------------------------------|
| (S206) | Stone and green clay deposited forming waterproofing deposit to leat wall line- deposit observed both sides of leat course and possible to speculate that the base is formed of clay and stones acting as water proofing layer. Same as (208)                                                                                                                                  | - | 0.60m+ | 0.50m+ | -                                                 |
| (S207) | A series of iron plates positioned vertical, running parallel to leat wall, dividing (206) from the loose stone of (205).                                                                                                                                                                                                                                                      | - | -      | -      | -                                                 |
| (N208) | Stone and green clay deposited forming waterproofing deposit to leat wall line- deposit observed both sides of leat course and possible to speculate that the base is formed of clay and stones acting as water proofing layer. Same as (206)                                                                                                                                  | - | -      | -      | Only exposed on north side of leat- not excavated |
| (N209) | red brown sandy deposit loose, sharp interface. Occasional inclusions of small rounded pebbles 1%, occasional angular stones, small 5%. Root disturbance. Appears to butt (208) and sealed by (200), similar to (200) suggesting contemporary relationship with original source of material used to construct leat. <i>Possible same as (200) just great stone inclusions.</i> | - | -      | -      | -                                                 |

| Floor Area Excavation |                                | 1                                         |  |       |       |  |
|-----------------------|--------------------------------|-------------------------------------------|------------------------------------------------------------------------------------|-------|-------|--|
| Sample Section Length |                                | -                                         | Excavated Depth                                                                    |       | 0.55m |  |
| Dimensions            |                                | Area cleaned 9.30m by 6.28m approximately |                                                                                    |       |       |  |
| Context No            | Description (Layer, Cut, Fill) | Dimensions (as appropriate)               |                                                                                    |       |       |  |
|                       |                                | Diameter                                  | Length                                                                             | Width | Depth |  |
| Site                  | Pump House Floor-Area cleaned  | -                                         | 9.30                                                                               | 6.28m | -     |  |

## Appendix II Photographic Register

| Photo number | Digital  | Direction Facing | Description                                                |
|--------------|----------|------------------|------------------------------------------------------------|
| 001          | DSC-3800 | -                | Film Identification.                                       |
| 002          | DSC-3801 | N                | Overview of community excavation in progress. (trench 1)   |
| 003          | DSC-3802 | <i>Mixed</i>     | Overview of community excavation in progress. (trench 1)   |
| 004          | DSC-3803 | <i>Mixed</i>     | Overview of community excavation in progress. (trench 1)   |
| 005          | DSC-3804 | <i>Mixed</i>     | Overview of community excavation in progress. (trench 1)   |
| 006          | DSC-3805 | <i>Mixed</i>     | Overview of community excavation in progress. (trench 1)   |
| 007          | DSC-3812 | <i>Mixed</i>     | Overview of community excavation in progress. (trench 1)   |
| 008          | DSC-3815 | <i>Mixed</i>     | Overview of community excavation in progress. (trench 1)   |
| 009          | DSC-3819 | <i>Mixed</i>     | Overview of community excavation in progress. (trench 1)   |
| 010          | DSC-3821 | S                | General of Bund, Press house - (trench 1)                  |
| 011          | DSC-3832 | <i>Mixed</i>     | Overview of community excavation in progress. (trench 1)   |
| 012          | DSC-3833 | <i>Mixed</i>     | Overview of community excavation in progress. (trench 1)   |
| 013          | DSC-3834 | <i>Mixed</i>     | Overview of community excavation in progress. (trench 1)   |
| 014          | DSC-3835 | <i>Mixed</i>     | Overview of community excavation in progress. (trench 1)   |
| 015          | DSC-3836 | <i>Mixed</i>     | Overview of community excavation in progress. (trench 1)   |
| 016          | DSC-3837 | <i>Mixed</i>     | Overview of community excavation in progress. (trench 1)   |
| 017          | DSC-3838 | <i>Mixed</i>     | Overview of community excavation in progress. (trench 1)   |
| 018          | DSC-3839 | NE               | Detail showing deposit (103) during excavation. (trench 1) |
| 019          | DSC-3840 | SW               | Detail showing removal of surface covering. (trench 1)     |
| 020          | DSC-3849 | NE               | Detail showing removal of surface covering. (trench 1)     |
| 021          | DSC-3891 | SW               | Detail showing (102). (trench 1)                           |
| 022          | DSC-3898 | N                | Detail showing (102)-running section. (trench 1)           |

|     |          |              |                                                                                    |
|-----|----------|--------------|------------------------------------------------------------------------------------|
| 023 | DSC-3899 | N            | Detail showing (102)-running section. (trench 1)                                   |
| 024 | DSC-3900 | N            | Detail showing (102)-running section. (trench 1)                                   |
| 025 | DSC-3901 | N            | Detail showing (102)-running section. (trench 1)                                   |
| 026 | DSC-3902 | N            | Detail showing (102)-running section. (trench 1)                                   |
| 027 | DSC-3903 | N            | Detail showing (102)-running section. (trench 1)                                   |
| 028 | DSC-3904 | N            | Detail showing (102)-running section. (trench 1)                                   |
| 029 | DSC-3914 | NE           | Detail showing bund wall and blocking wall of press house in relation to trench 1. |
| 030 | DSC-3914 | NE           | Detail showing bund wall- unbonded and no internal face. (trench 1)                |
| 031 | DSC-4136 | -            | Detail showing bund wall- unbonded and no internal face. (trench 1)                |
| 032 | DSC-4137 | SW           | North side of leat, start of excavation (209). (trench 2)                          |
| 033 | DSC-4567 | <i>Mixed</i> | Overview of community excavation in progress. (trench 2)                           |
| 034 | DSC-4568 | <i>Mixed</i> | Overview of community excavation in progress. (trench 2)                           |
| 035 | DSC-4569 | <i>Mixed</i> | Overview of community excavation in progress. (trench 2)                           |
| 036 | DSC-4570 | SE           | Leat wall after cleaning showing Iron plates (207) (trench 2)                      |
| 037 | DSC-4570 | SW           | Leat wall after cleaning showing Iron plates (207) (trench 2)                      |
| 038 | DSC-4574 | NE           | Leat wall after cleaning showing Iron plates (207) (trench 2)                      |
| 039 | DSC-4575 | NW           | Leat wall after cleaning showing Iron plates (207) (trench 2)                      |
| 040 | DSC-4576 | NE           | Detail showing Iron plates (207) (trench 2)                                        |
| 041 | DSC-4577 | NE           | Detail showing Iron plates (207) (trench 2)                                        |
| 042 | DSC-4578 | NE           | Detail showing Iron plates (207) (trench 2)                                        |
| 043 | DSC-4579 | NW           | Detail showing Iron plates (207) (trench 2)                                        |
| 045 | DSC-4580 | NW           | Detail showing Iron plates (207) (trench 2)                                        |

|     |          |              |                                                          |
|-----|----------|--------------|----------------------------------------------------------|
| 046 | DSC-4581 | NW           | Detail showing Iron plates (207) (trench 2)              |
| 047 | DSC-4582 | <i>Mixed</i> | Overview of community excavation in progress. (trench 2) |
| 048 | DSC-4583 | <i>Mixed</i> | Overview of community excavation in progress. (trench 2) |
| 049 | DSC-4584 | <i>Mixed</i> | Overview of community excavation in progress. (trench 2) |
| 050 | DSC-4585 | <i>Mixed</i> | Overview of community excavation in progress. (trench 2) |
| 051 | DSC-4586 | <i>Mixed</i> | Overview of community excavation in progress. (trench 2) |
| 052 | DSC-4587 | <i>Mixed</i> | Overview of community excavation in progress. (trench 2) |
| 053 | DSC-4588 | <i>Mixed</i> | Overview of community excavation in progress. (trench 2) |
| 054 | DSC-4589 | <i>Mixed</i> | Overview of community excavation in progress. (trench 2) |
| 055 | DSC-4592 | <i>Mixed</i> | Overview of community excavation in progress. (trench 2) |
| 056 | DSC-4592 | NW           | Detail showing sondage, (205).                           |
| 057 | DSC-4595 | N            | Detail showing sondage, (206).                           |
| 058 | DSC-4595 | N            | Detail showing sondage, (205), (206).                    |
| 059 | DSC-4598 | SE           | Detail showing section, (201), (206).                    |
| 060 | DSC-4599 | SE           | Detail showing section, (201), (205) + (206).            |
| 061 | DSC-4599 | SE           | Detail showing section, (201), (205) + (206).            |
| 062 | DSC-4600 | SE           | Detail showing, (209) + (206).                           |
| 063 | DSC-4605 | SE           | Detail showing excavated area. (trench 2)                |
| 064 | DSC-4797 | SW           | Detail showing excavated area, (209), (208). (trench 2)  |
| 065 | DSC-4797 | N            | Detail showing Leat base - cleaned. (trench 2)           |
| 066 | DSC-4835 | Mixed        | Area 3 overview details of cleaned area.                 |
| 067 | DSC-4837 | Mixed        | Area 3 overview details of cleaned area.                 |
| 068 | DSC-4838 | Mixed        | Area 3 overview details of cleaned area.                 |
| 069 | DSC-4839 | Mixed        | Area 3 overview details of cleaned area.                 |
| 070 | DSC-4840 | Mixed        | Area 3 overview details of cleaned area.                 |
| 071 | DSC-4841 | Mixed        | Area 3 overview details of cleaned area.                 |

|     |          |       |                                          |
|-----|----------|-------|------------------------------------------|
| 072 | DSC-4842 | Mixed | Area 3 overview details of cleaned area. |
| 073 | DSC-4843 | Mixed | Area 3 overview details of cleaned area. |
| 074 | DSC-4844 | Mixed | Area 3 overview details of cleaned area. |
| 075 | DSC-4845 | Mixed | Area 3 overview details of cleaned area. |
| 076 | DSC-4846 | Mixed | Area 3 overview details of cleaned area. |
| 077 | DSC-4847 | Mixed | Area 3 overview details of cleaned area. |
| 078 | DSC-4848 | Mixed | Area 3 overview details of cleaned area. |
| 079 | DSC-4849 | Mixed | Area 3 overview details of cleaned area. |
| 080 | DSC-4850 | Mixed | Area 3 overview details of cleaned area. |
| 081 | DSC-4851 | Mixed | Area 3 overview details of cleaned area. |
| 082 | DSC-4852 | Mixed | Area 3 overview details of cleaned area. |
| 083 | DSC-4853 | Mixed | Area 3 overview details of cleaned area. |